Metadata Management

(see Appendix 1 for a more detailed discussion)

Metadata are a critical component of the Data Communications Infrastructure, required for all key infrastructure functions: discovery, transport, uniform on-line browse, archive, and access. Metadata considerations are equally applicable to both data and information products. A sustained commitment to the creation and management of metadata is a requirement to support the ability of users to locate and use data. Sustaining this commitment will be a challenge to IOOS Leadership. Certain classes of metadata (e.g., variable names, units, coordinates) are indispensable to any utilization of the data, and must be tightly bound to data transport as an integral part of the data delivery protocols. We refer to this class of information as "use metadata." Other types of information, such as descriptions of measurement and analysis techniques, help to place the data in context and are essential to overall understanding and usefulness of the data. We refer to this class of information as "descriptive metadata."

Federal Executive Order[7] mandates, "each [federal] agency shall document all new geospatial data it collects or produces, either directly or indirectly, using the standard under development by the Federal Geographic Data Committee (FGDC)." While there are many IOOS members to whom this mandate does not directly apply, the breadth of participation found in FGDC makes it a natural initial foundation for DMAC[8] metadata. The FGDC developed the Content Standard for Digital Geospatial Metadata (CSDGM) that provides a common set of names and definitions of compound and individual data elements used to document digital geospatial data. The content of FGDC records encompasses the elements of many other metadata formats including most of the content contained in the Directory Interchange Format (DIF) metadata records in common use by international IOOS partners. The scope of FGDC, however, is far broader than marine data. A focused activity to determine the precise information that will define DMAC-standard metadata content, along with mechanisms for extensibility, are initial tasks identified within Part II of this phased DMAC Implementation Plan. Controlled keywords (standardized topic names) and controlled vocabularies (standardized technical terminology) need to be adopted or developed. The breadth of scientific disciplines that will participate in DMAC guarantees the existence of overlapping terminology, and therefore tools and techniques to perform translation among these controlled vocabularies are needed. "Parent-child" hierarchies of metadata must be supported, since marine data are often managed as collections of observations that require description both as inventories and as individual observations.

[7]Executive Order 12906 (April 11, 1994)

[8]It should be noted that the International Organization for Standardization (ISO) developed a standard for geospatial metadata. This standard, ISO 19115, was formally accepted in May 2003. It is anticipated that the next version of FGDC Content Standard for Geospatial Metadata (CSDGSM) will be in a form compatible with the international standard.